

GUJARAT TECHNOLOGICAL UNIVERSITY**BE- SEMESTER-V EXAMINATION – WINTER 2025****Subject Code:2150603****Date:25-11-2025****Subject Name:Environmental Engineering****Time:10:30 AM TO 01:00 PM****Total Marks:70****Instructions:**

1. Attempt all questions.
2. Make suitable assumptions wherever necessary.
3. Figures to the right indicate full marks.
4. Simple and non-programmable scientific calculators are allowed.

		MARKS
Q.1	(a) Schematically describe microbial growth curve.	03
	(b) State how to calculate quantity of water required for design of water supply scheme for a town.	04
	(c) Derive the equation for first stage BOD and calculate 5 day BOD at 20°C if 3 day BOD at 30°C is 110 mg/L and K_D at 20°C is 0.1	07
Q.2	(a) What is E-coli test? Explain the purpose of this test.	03
	(b) “Hand pump water is treated safe compared to pond water” Justify the statement	04
	(c) Compare temporary and permanent hardness and find out total hardness, carbonate hardness and non-carbonate hardness for water analysis-Ca=60 mg/L, Mg= 30 mg/L, Na=101 mg/L, K= 21 mg/L and HCO_3^- = 200 mg/L	07
OR		
	(c) Enumerate different chemical characteristics of water and wastewater and explain cause of acidity and alkalinity in water?	07
Q.3	(a) Differentiate colloidal and suspended impurities present in water	03
	(b) What do you mean by pH? How can it be determined in lab	04
	(c) What is solid waste management? Discuss the solid waste management of your society.	07
OR		
Q.3	(a) Discuss the use of water seal in trap with the sketch.	03
	(b) Differentiate Indian and American type trap showing their sketches	04
	(c) What is self-purification of river? Calculate DO and COD of mix, when two industrial streams of DO of 0.5 mg/L and 0.1 mg/L and COD of 200 mg/L and 400 mg/L and flow of 30 cumecs and 50 cumecs respectively are disposed in river of flow 500 cumecs. Initial DO and COD of river was 6.0 mg/L and 30 mg/L respectively.	07
Q.4	(a) What is house drainage plan? Draw house drainage plan for your house in which you are residing.	03
	(b) Define (i) Soil pipe (ii) Refuse (iii) Garbage (iv) Waste pipe	04

- (c) Describe one pipe and two pipe systems of plumbing with sketches and compare their merits and demerits. **07**
- OR**
- Q.4** (a) State the role of SO_x and NO_x in acid rain formation. **03**
 (b) Discuss the effects of CO and RSPM on human beings. **04**
 (c) Compare the working principles of wet scrubber and cyclone for air pollution control with sketches. **07**
- Q.5** (a) List out the remedial measures to control noise pollution. **03**
 (b) State the salient features of The environment (protection) act 1986 **04**
 (c) Describe briefly different disposal technologies used for solid waste disposal and compare composting with land filling. **07**
- OR**
- Q.5** (a) Give the classification of solid waste. **03**
 (b) Discuss compositions of atmosphere and atmospheric air **04**
 (c) Describe briefly disposal techniques used for hazardous waste and hospital waste **07**
